

VSTRS Historical Data Trends

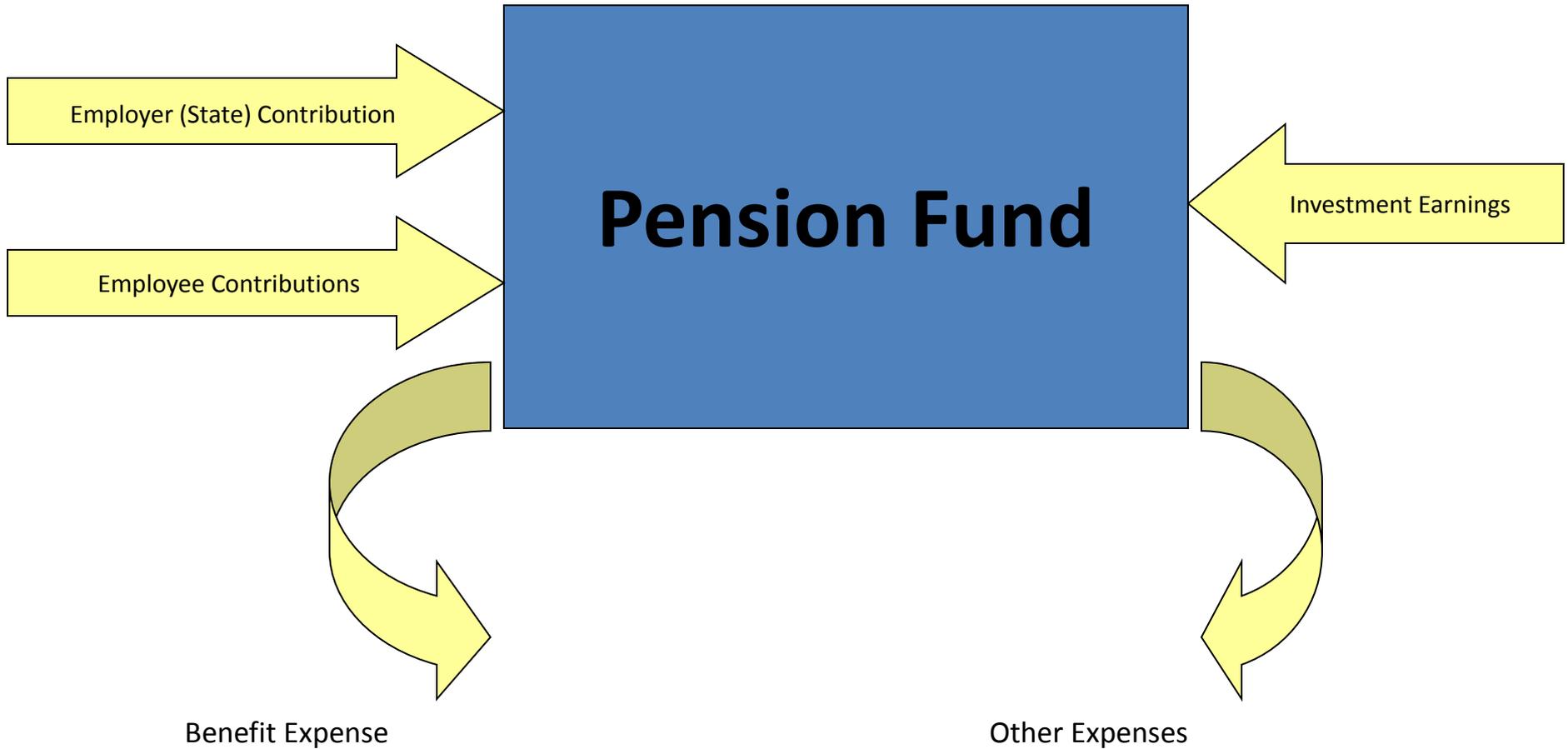
Draft for Discussion

Office of the State Treasurer

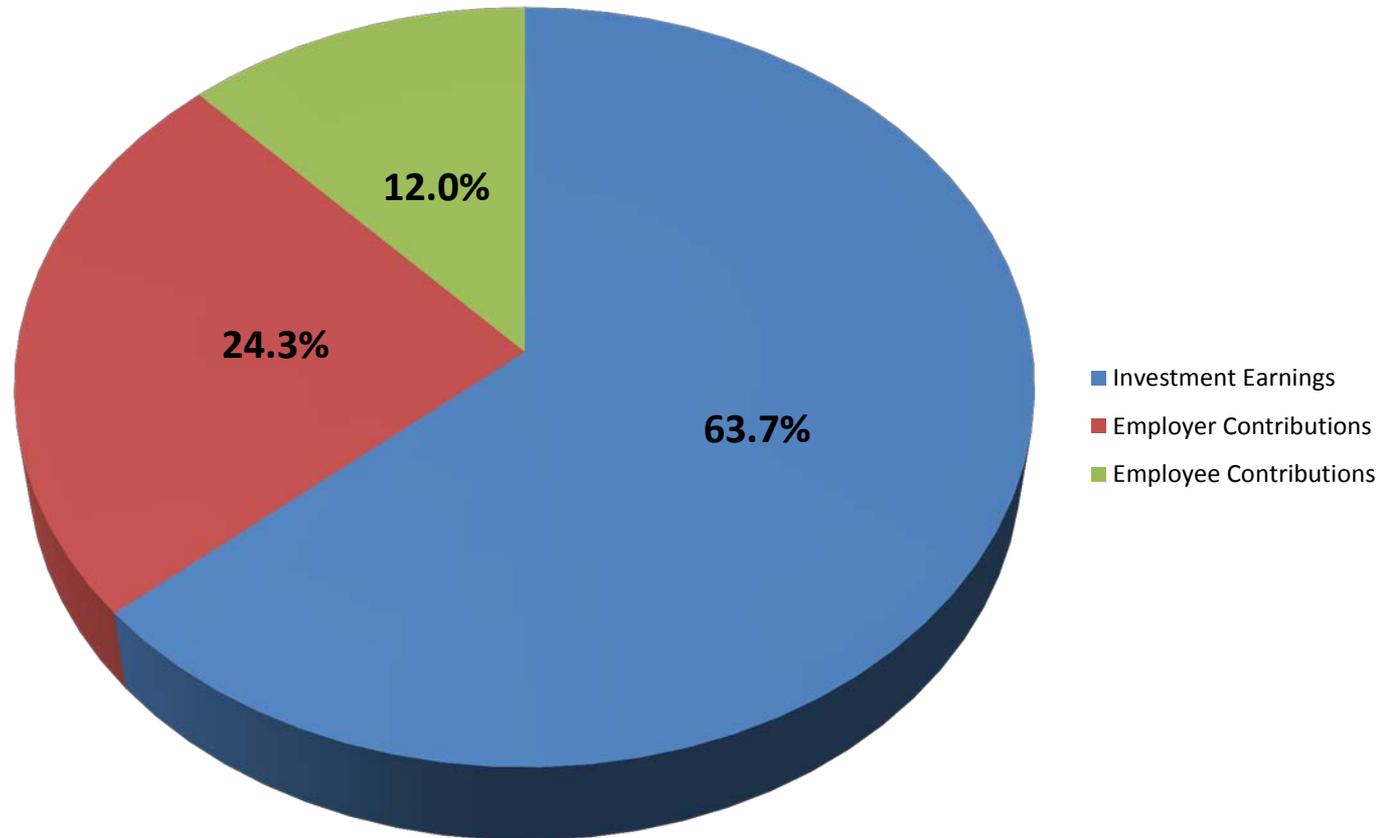
January 2015



Pension Funding Model



Investment earnings comprise the greatest source of revenue



Source: NASRA, [Key Facts Regarding State and Local Government Defined Benefit Plans](#), January 2007.

Funding Valuations

Teacher Plan	2013	2014
Actuarial Accrued Liability	\$2,566,834,655	\$2,687,049,333
Actuarial Value of Assets	\$1,552,924,370	\$1,610,285,523
Unfunded Liability	\$1,013,910,285	\$1,076,763,810
Funding percentage	60.5%	59.9%
State Plan	2013	2014
Actuarial Accrued Liability	\$1,914,299,984	\$2,010,089,866
Actuarial Value of Assets	\$1,469,169,902	\$1,566,075,540
Unfunded Liability	\$445,130,082	\$444,014,326
Funding percentage	76.7%	77.9%
Municipal Plan	2013	2014
Actuarial Accrued Liability	\$528,426,358	\$580,972,276
Actuarial Value of Assets	\$446,235,922	\$500,557,919
Unfunded Liability	\$82,190,436	\$80,414,357
Funding percentage	84.4%	86.2%

VSTRS- Funding History

Year	Total VSTRS Payroll	Total VSTRS Payroll/ Using 1979 Dollars	Recommended Contribution For Budget based on Actuarial projection	Actual Contribution	\$ Difference: Act vs. Rec. (Uses Budget Beginning 1996)	Percentage of Request of Budget Basis	Actual Contribution as a Percentage of Payroll
1979	96,725,620	96,725,620	7,806,825	4,825,155	2,981,670	61.8%	5.0%
1980	104,521,888	92,090,887	8,944,090	8,471,960	472,130	94.7%	8.1%
1981	112,811,389	90,100,185	9,862,861	8,830,900	1,031,961	89.5%	7.8%
1982	126,748,398	95,356,826	10,200,209	7,822,760	2,377,449	76.7%	6.2%
1983	139,085,342	101,381,484	10,721,814	10,929,355	(207,541)	101.9%	7.9%
1984	153,329,729	107,138,964	12,341,069	11,592,100	748,969	93.9%	7.6%
1985	169,219,652	114,176,085	13,475,181	12,567,866	907,315	93.3%	7.4%
1986	187,834,677	124,423,335	14,668,095	14,461,148	206,947	98.6%	7.7%
1987	206,728,650	132,117,077	15,925,452	16,239,416	(313,964)	102.0%	7.9%
1988	230,430,153	141,413,602	16,294,346	17,186,259	(891,913)	105.5%	7.5%
1989	261,596,990	153,160,818	18,072,172	19,000,000	(927,828)	105.1%	7.3%
1990	273,951,188	152,171,815	21,320,155	19,561,000	1,759,155	91.7%	7.1%
1991	298,104,184	158,901,349	25,013,437	15,000,000	10,013,437	60.0%	5.0%
1992	312,346,750	161,627,755	28,595,220	14,618,992	13,976,228	51.1%	4.7%
1993	324,536,824	163,054,487	28,819,875	19,890,048	8,929,827	69.0%	6.1%
1994	335,155,405	164,185,441	25,805,408	20,580,000	5,225,408	79.8%	6.1%
1995	346,975,007	165,291,243	27,451,926	18,080,000	9,371,926	65.9%	5.2%
1996	355,894,809	164,677,904	29,884,559	11,480,000	18,404,559	38.4%	3.2%
1997	364,695,370	164,965,008	30,954,237	18,080,000	12,874,237	58.4%	5.0%
1998	357,899,112	159,407,825	33,519,949	18,106,581	15,413,368	54.0%	5.1%
1999	372,298,852	162,238,275	27,232,542	18,080,000	9,152,542	66.4%	4.9%
2000	387,998,959	163,581,443	23,573,184	18,586,240	4,986,944	78.8%	4.8%
2001	403,258,305	165,310,858	20,882,521	19,143,827	1,738,694	91.7%	4.7%
2002	418,904,021	169,051,873	21,965,322	20,446,282	1,519,040	93.1%	4.9%
2003	437,238,543	172,519,121	23,197,088	20,446,282	2,750,806	88.1%	4.7%
2004	453,517,153	174,300,399	29,608,892	24,446,282	5,162,610	82.6%	5.4%
2005	486,857,658	180,982,417	43,592,332	24,446,282	19,146,050	56.1%	5.0%
2006	499,044,327	179,715,368	49,923,599	24,985,506	24,938,093	50.0%	5.0%
2007	515,572,694	180,525,786	38,200,000	38,496,410	(296,410)	100.8%	7.5%
2008	535,807,012	180,673,697	40,749,097	40,955,566	(206,469)	100.5%	7.6%
2009	561,588,013	190,043,162	37,077,050	37,349,818	(272,768)	100.7%	6.7%
2010	562,149,916	187,163,315	41,503,002	41,920,603	(417,601)	101.0%	7.5%
2011	547,748,405	176,788,081	48,233,006	50,268,131	(2,035,125)	104.2%	9.2%
2012	561,179,272	177,450,696	51,241,932	56,152,011	(4,910,079)	109.6%	10.0%
2013	563,623,421	175,650,701	60,182,755	65,086,320	(4,903,565)	108.1%	11.5%
2014	567,073,601	172,732,337	68,352,825	72,668,412	(4,315,587)	106.3%	12.8%

Note: Draft for discussion purposes

Notes to Recommended Contributions

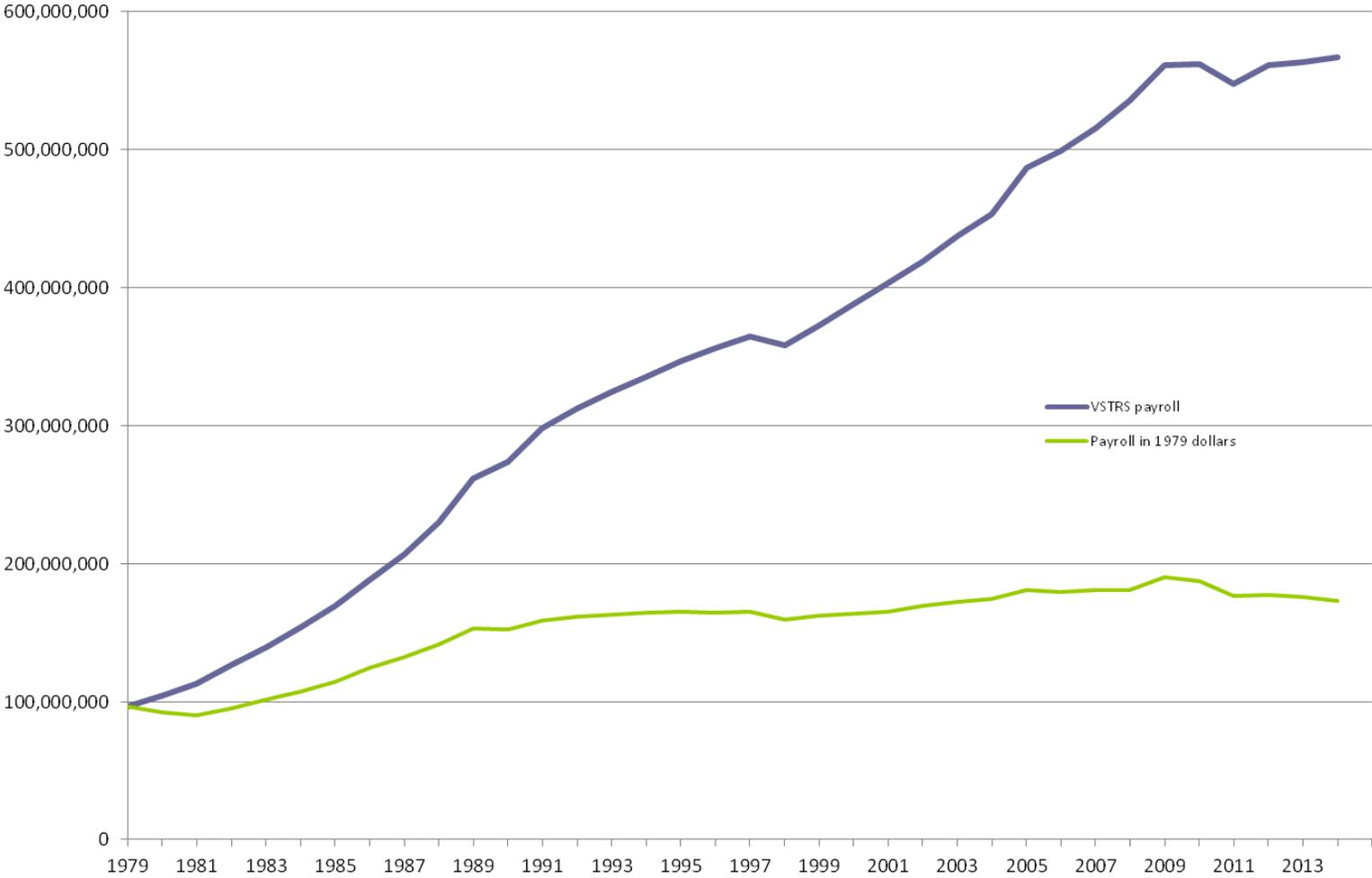
- 2007 budget recommendation was revised based on study commission results (November 2005) including reamortization and conversion to EAN method.
- FY 2009 budget recommendation changed from original actuarial report total of \$43,157,974 to \$37,077,050 based on an experience study completed that year.
- On the basis of the June 30, 2009, actuarial valuation, the recommended contribution for the fiscal year ending June 30, 2010, was \$60,581,380. This reflected impacts of Great recession not known at the time of the 2008 valuation used to calculate the budget recommendation. Subsequent realignment of benefits brought the projected need down in 2010.
- 2011 budget number reflects changes made though enacted legislation and recalculation by the actuary.
- Budgeted appropriations to fund the ARC for VSTRS are determined based on the actuarial reports that are completed and delivered for each system in October of the prior fiscal year. When the next actuarial report is delivered the following October, the ARC calculation for the current fiscal year may increase or decrease relative to the ARC used for appropriation in that fiscal year (which was based on the projection in the prior year's October actuarial report). Appropriations, however, are not adjusted to reflect the true-up ARC calculation, but rather remain based on the projected ARC calculated in the prior fiscal year's October report.

VSTRS Demographic Data

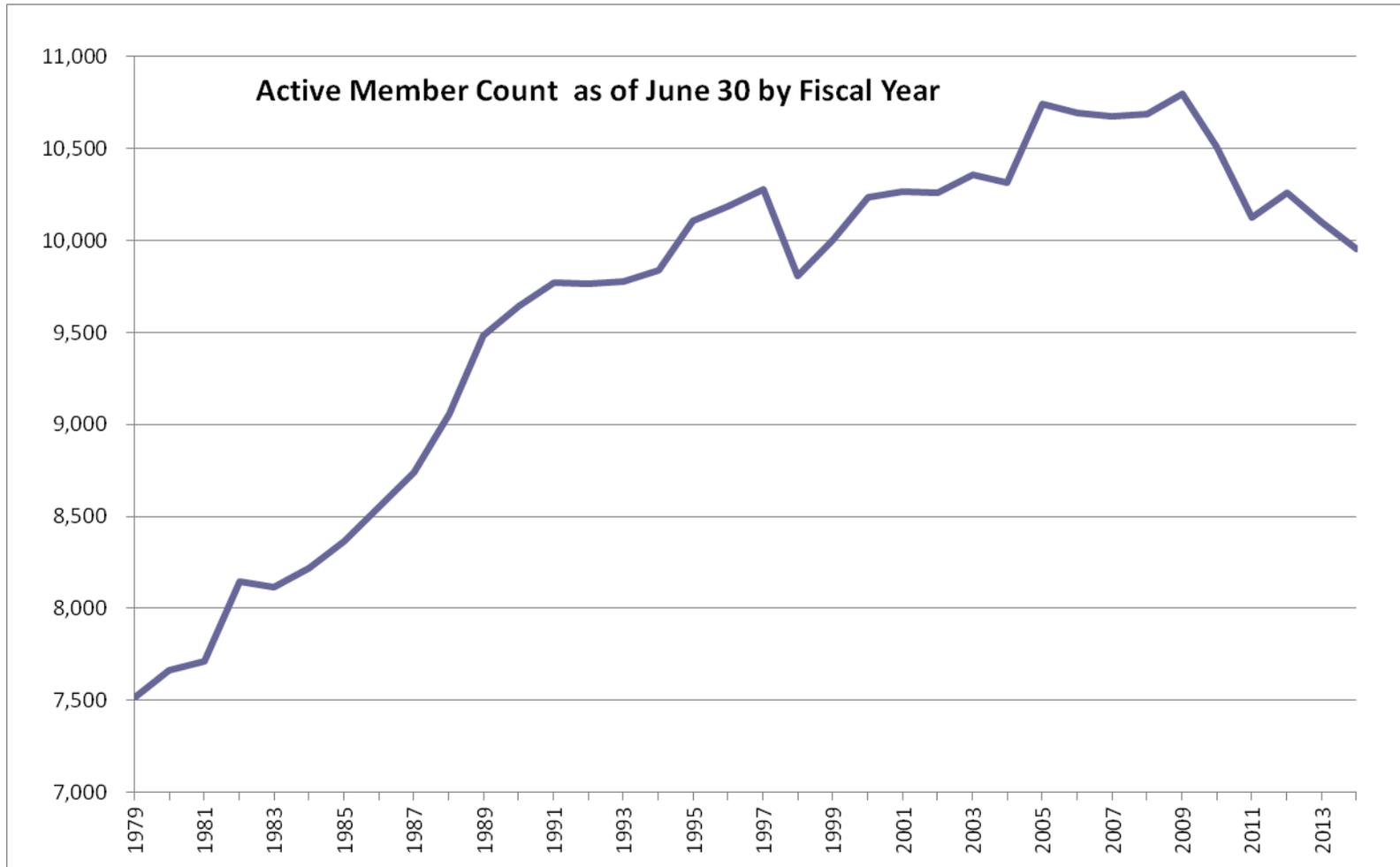
Year	Active Members	Inactive Members	Deferred Vested Members	Retired members	System Total	Actives Only			
						Average Age	Average Service	Annual Compensation	Avg
1979	7,515	603	24	2,014	10,156	38.5	8.3	96,725,620	12,871.01
1980	7,665	526	25	2,079	10,295	38.7	8.5	104,521,888	13,636.25
1981	7,713	614	25	2,156	10,508	39.0	8.7	112,811,389	14,626.14
1982	8,143	881	28	2,200	11,252	40.0	9.4	126,748,398	15,565.32
1983	8,116	1,209	29	2,244	11,598	39.6	9.7	139,085,342	17,137.18
1984	8,218	1,312	33	2,285	11,848	40.0	10.0	153,329,729	18,657.79
1985	8,367	1,302	122	2,324	12,115	40.4	10.3	169,219,652	20,224.65
1986	8,549	1,455	142	2,378	12,524	40.8	10.4	187,834,677	21,971.54
1987	8,737	1,493	184	2,430	12,844	41.1	10.6	206,728,650	23,661.29
1988	9,057	1,426	245	2,495	13,223	41.5	10.6	230,430,153	25,442.22
1989	9,487	1,428	286	2,547	13,748	41.8	10.7	261,596,990	27,574.26
1990	9,644	1,417	334	2,577	13,972	42.2	11.0	273,951,188	28,406.39
1991	9,770	1,442	383	2,631	14,226	42.8	11.4	298,104,184	30,512.20
1992	9,763	1,339	427	2,742	14,271	43.2	11.1	312,346,750	31,992.91
1993	9,777	1,267	475	2,799	14,318	43.6	11.5	324,536,824	33,193.91
1994	9,836	1,265	508	2,897	14,506	44.0	11.8	335,155,405	34,074.36
1995	10,110	1,292	393	3,011	14,806	44.2	12.4	346,975,007	34,319.98
1996	10,185	1,465	414	3,092	15,156	44.5	12.6	355,894,809	34,943.03
1997	10,280	1,681	402	3,188	15,551	44.9	12.9	364,695,370	35,476.20
1998	9,808	2,227	381	3,289	15,705	45.1	13.2	357,899,112	36,490.53
1999	10,006	2,278	376	3,485	16,145	44.9	12.2	372,298,852	37,207.56
2000	10,234	2,414	356	3,647	16,651	44.9	12.0	387,998,959	37,912.74
2001	10,264	2,654	495	3,812	17,225	45.1	12.1	403,258,305	39,288.61
2002	10,257	2,932	513	3,991	17,693	44.5	12.4	418,904,021	40,840.79
2003	10,355	2,901	583	4,169	18,008	45.4	12.5	437,238,543	42,224.87
2004	10,315	3,084	560	4,386	18,345	45.9	12.8	453,517,153	43,966.76
2005	10,744	2,906	568	4,592	18,810	44.6	12.6	486,857,658	45,314.38
2006	10,696	2,777	759	4,879	19,111	46.7	13.6	499,044,327	46,657.10
2007	10,675	2,901	741	5,192	19,509	46.7	13.6	515,572,694	48,297.21
2008	10,685	2,929	705	5,555	19,874	46.9	13.6	535,807,012	50,145.72
2009	10,799	2,655	721	5,910	20,085	47.1	13.8	561,588,013	52,003.71
2010	10,509	2,853	718	6,146	20,226	47.1	13.8	562,149,916	53,492.24
2011	10,123	2,675	647	7,005	20,450	46.9	13.8	547,748,405	54,109.30
2012	10,262	2,193	793	7,376	20,624	46.9	13.1	561,179,272	54,685.18
2013	10,101	2,322	751	7,743	20,917	46.6	13.1	563,623,421	55,798.77
2014	9,952	2,416	740	8,086	21,194	46.5	13.2	567,073,601	56,980.87

Note: Based on data point of 6/30; does not include new hires/transfers/terminations during year but does reflect school year end retirements. Includes members of the teachers retirement system, does not include school staff (non licensed positions) that are included in the municipal retirement system

Growth in Payroll for Active Teachers as of Fiscal Year End



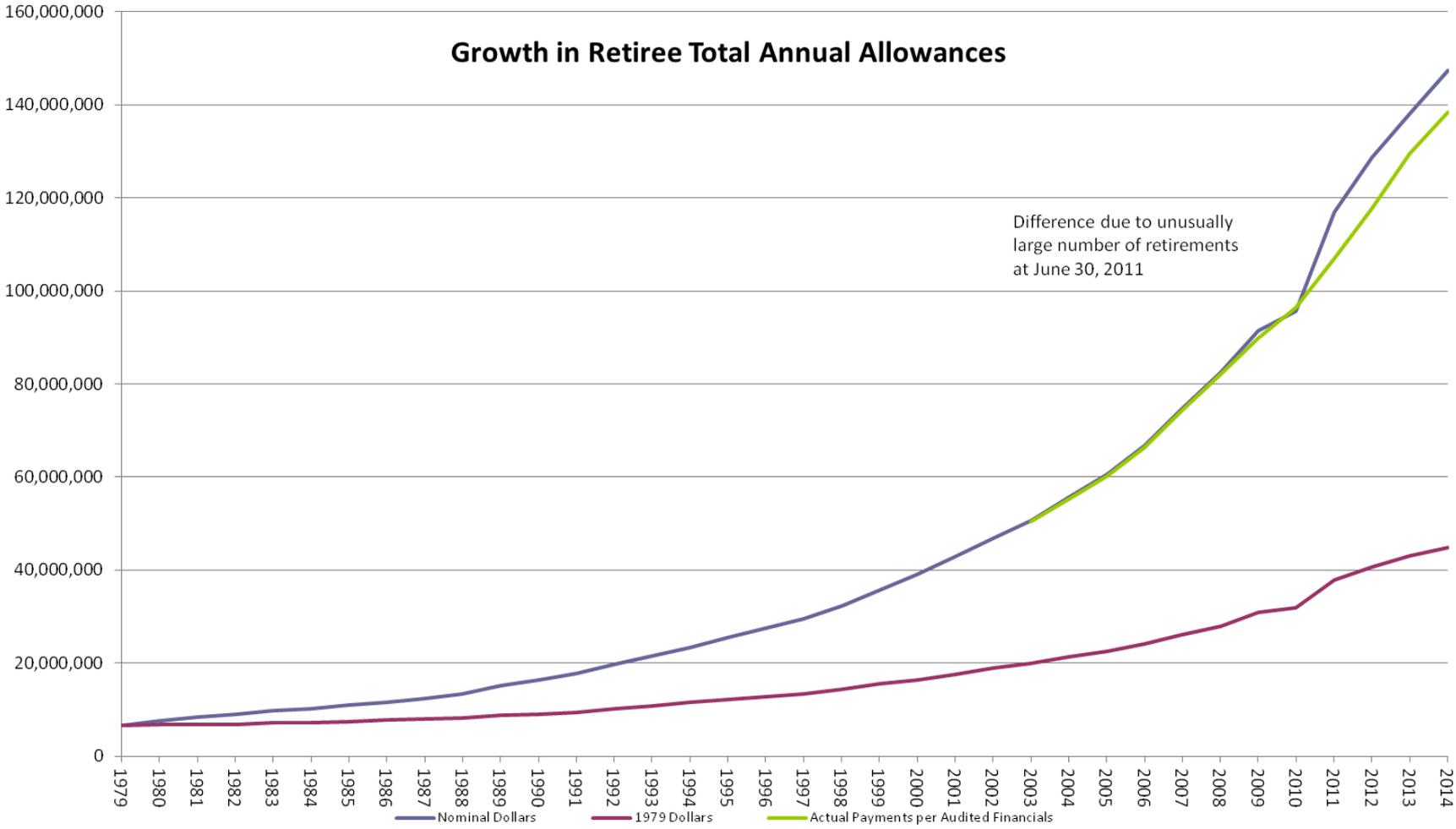
Some slowdown/Reduction of Active Teacher Population>> Additional Retirees



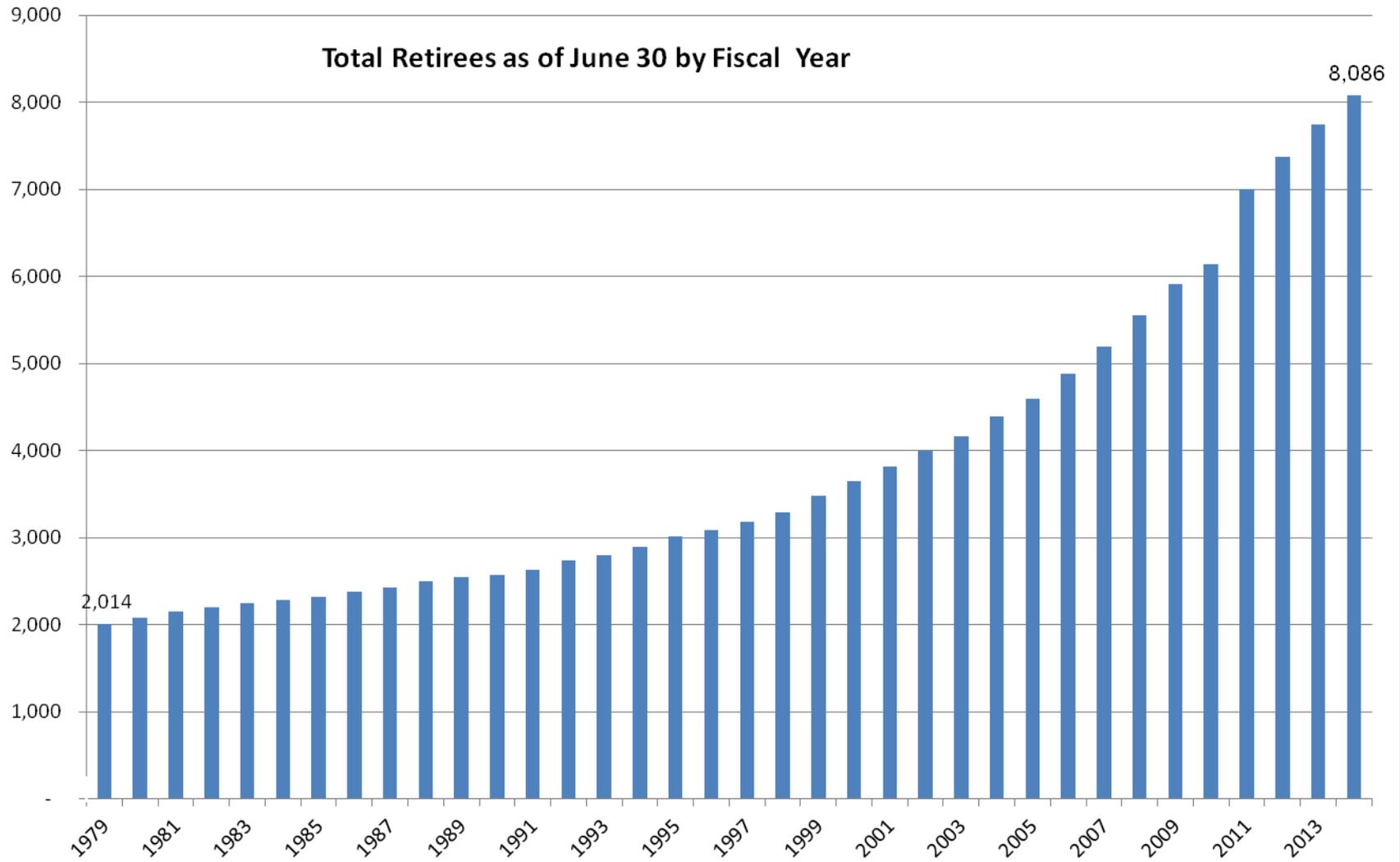
Retiree Data

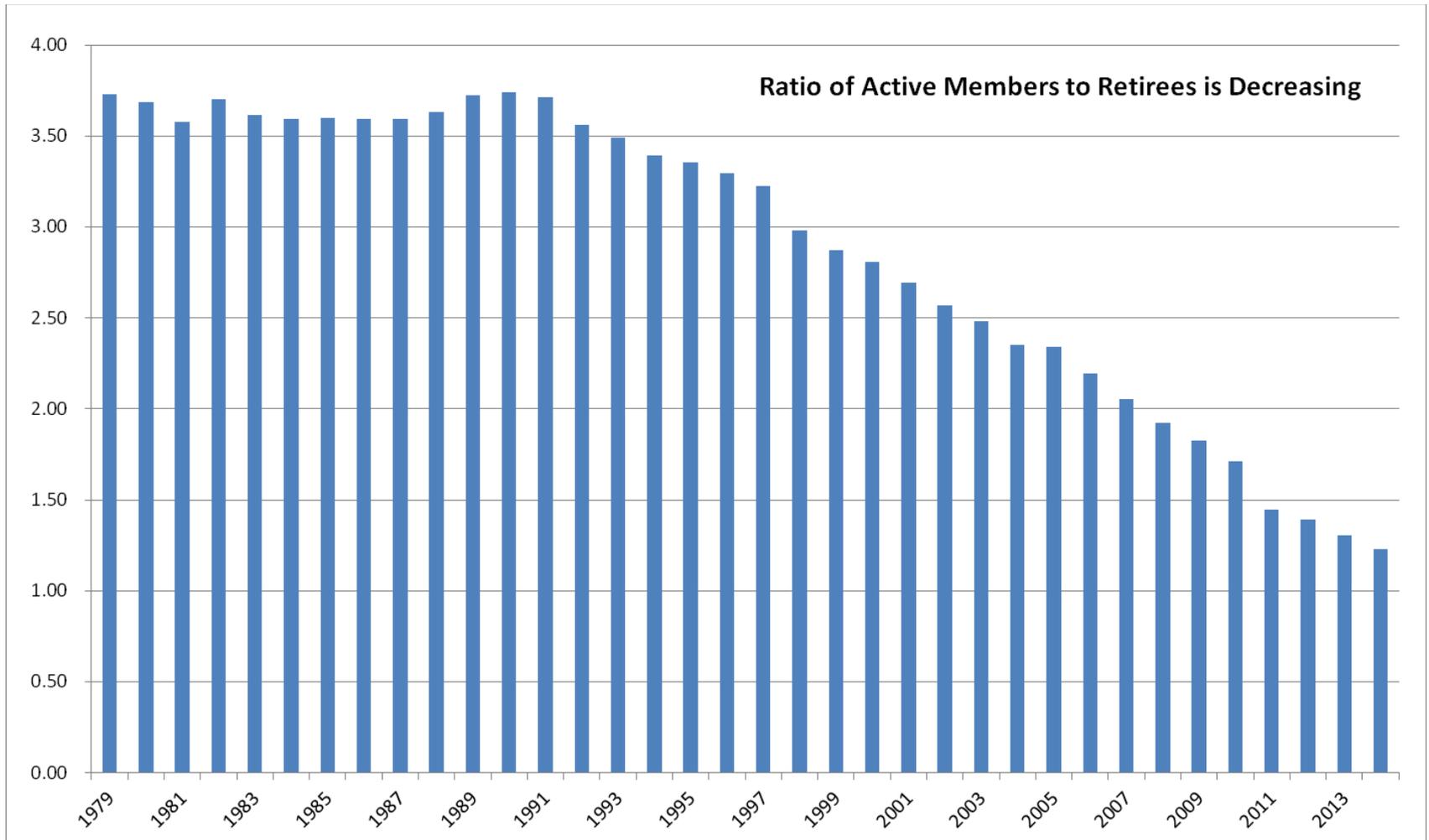
Year	Annual Retirement Allowances	Avg Retirement Allowance	Total Retirees	Active to Retiree Ratio	Service Pensions	Disability Retirements	Beneficiaries of Deceased Members
1979	6,536,436	3,245.50	2,014	3.73	1,832	42	140
1980	7,640,076	3,674.88	2,079	3.69	1,894	44	141
1981	8,439,552	3,914.45	2,156	3.58	1,959	46	151
1982	9,045,804	4,111.73	2,200	3.70	2,005	46	149
1983	9,787,080	4,361.44	2,244	3.62	2,049	47	148
1984	10,251,108	4,486.26	2,285	3.60	2,091	51	143
1985	10,903,572	4,691.73	2,324	3.60	2,126	53	145
1986	11,616,456	4,884.97	2,378	3.60	2,174	51	153
1987	12,337,656	5,077.22	2,430	3.60	2,222	58	150
1988	13,362,432	5,355.68	2,495	3.63			
1989	15,084,456	5,922.44	2,547	3.72	2,328	62	157
1990	16,242,600	6,302.91	2,577	3.74	2,352	62	163
1991	17,727,860	6,738.07	2,631	3.71	2,396	67	168
1992	19,820,232	7,228.39	2,742	3.56	2,485	75	182
1993	21,488,292	7,677.13	2,799	3.49	2,543	78	178
1994	23,385,984	8,072.48	2,897	3.40	2,628	78	191
1995	25,416,756	8,441.30	3,011	3.36	2,732	86	193
1996	27,489,723	8,890.60	3,092	3.29	2,830	88	174
1997	29,540,472	9,266.15	3,188	3.22	2,898	95	195
1998	32,256,765	9,807.47	3,289	2.98	3,089	113	87
1999	35,705,781	10,245.56	3,485	2.87	3,169	95	221
2000	38,982,920	10,689.04	3,647	2.81	3,302	98	247
2001	42,867,493	11,245.41	3,812	2.69	3,462	105	245
2002	46,774,212	11,719.92	3,991	2.57	3,624	113	254
2003	50,540,997	12,123.05	4,169	2.48	3,791	118	260
2004	55,504,554	12,654.94	4,386	2.35	4,003	119	264
2005	60,545,793	13,185.06	4,592	2.34	4,195	126	271
2006	66,776,433	13,686.50	4,879	2.19	4,471	132	276
2007	74,726,093	14,392.54	5,192	2.06	4,767	136	289
2008	82,480,807	14,848.03	5,555	1.92	5,106	141	308
2009	91,393,401	15,464.20	5,910	1.83	5,439	147	324
2010	95,664,775	15,565.37	6,146	1.71	5,676	155	315
2011	117,019,135	16,705.09	7,005	1.45	6,509	158	338
2012	128,765,217	17,457.32	7,376	1	6,856	158	362
2013	138,079,875	17,832.87	7,743	1.30	7,195	161	387
2014	147,409,221	18,230.18	8,086	1.23	7,515	159	412

Growth in Retiree Total Annual Allowances



Total Retirees as of June 30 by Fiscal Year





Issues related to Active to Retiree Ratio

- Unlike a “pay-as-you-go” plan such as Social Security, the actuary takes this in account when developing models to prefund benefits.
- The increasing trend may get ahead of actuarial demographic assumptions, creating actuarial losses.
- Trends are indicative of a maturing plan and can make it more difficult to achieve the objectives of full funding.
- Potentially creates more volatility in employer contribution rates.
- As more funds are needed for benefit payments, the system has a greater negative cash flow (benefit payments exceed contributions), requiring more liquid assets to fund these payments.
- Impacts asset allocation strategy over time. May have VPIC impacts.

Summary of VSTRS Fund Operations

Teachers Retirement System

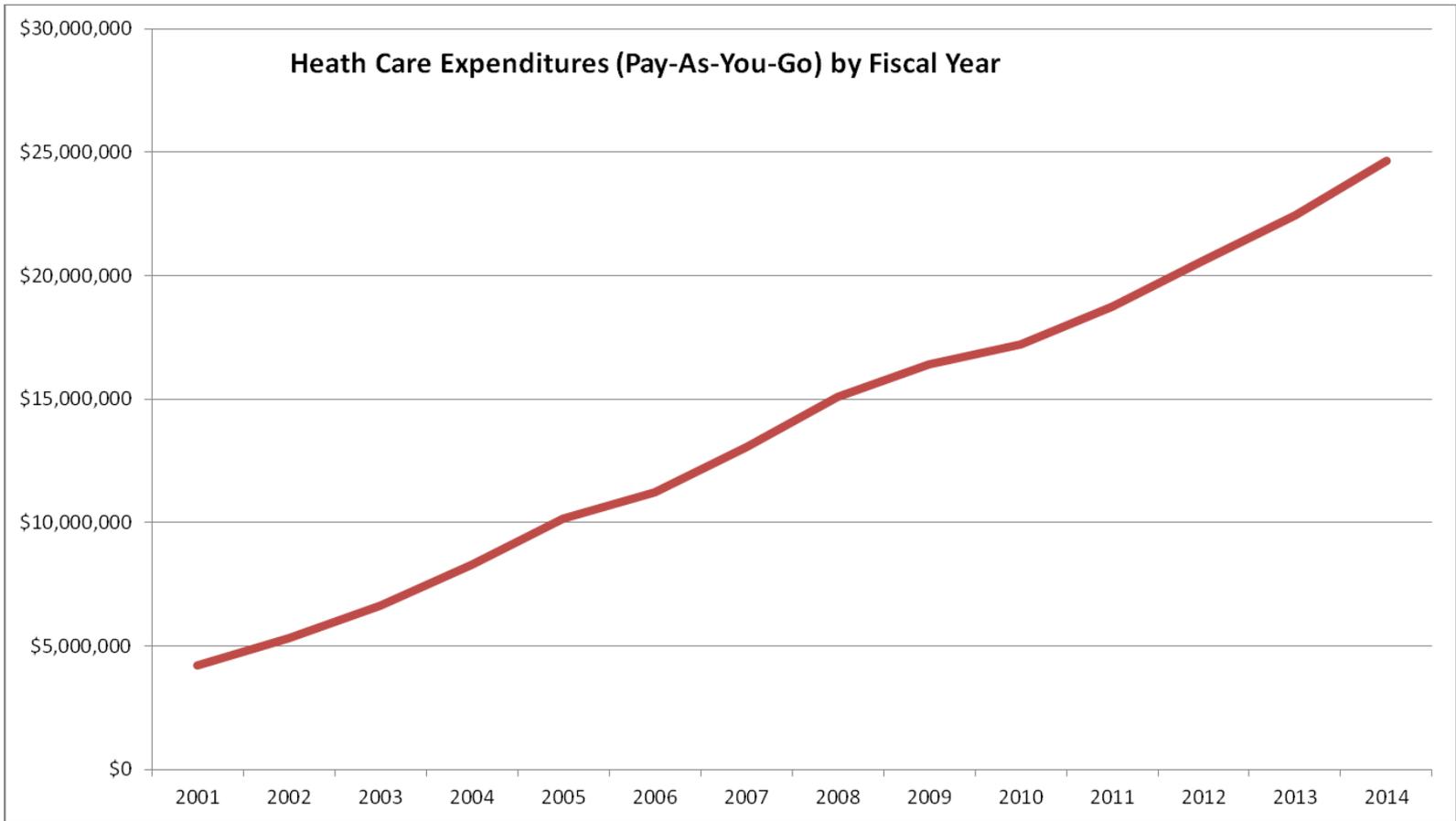
Category	2006	2007	2008	2009	2010	2011	2012	2013	2014
SOURCES OF FUNDS									
Employee Contributions	\$ 21,884,140	\$ 22,533,479	\$ 22,918,798	\$ 20,937,686	\$ 25,315,397	\$ 32,062,253	\$ 31,827,995	\$ 32,343,368	\$ 32,558,584
Employer Contributions	24,446,282	37,341,609	39,549,097	35,960,934	40,545,321	47,134,361	51,731,875	63,646,240	71,869,736
Other Income	1,180,606	2,093,219	1,628,242	3,754,020	1,817,540	3,341,877	4,505,246	1,733,033	1,209,177
Investment Income (Reduction)	130,835,585	244,437,213	(110,019,634)	(307,382,559)	208,723,610	261,886,311	24,726,665	120,403,030	212,338,194
APPLICATION OF FUNDS									
Retirement Benefits	66,272,471	74,368,306	82,157,642	89,825,986	96,448,102	106,930,467	117,801,002	129,416,052	138,484,665
Refunds	1,290,197	1,625,140	1,280,715	1,420,776	1,183,659	1,218,955	1,521,099	1,604,283	1,870,988
Health/Life Insurance Expenses	11,233,854	13,040,783	15,081,847	16,421,176	17,203,669	18,749,675	20,620,144	22,459,219	24,640,986
Administrative Expenses	1,679,883	817,052	866,473	1,249,774	1,078,762	1,399,732	1,604,735	1,680,722	1,474,828
Other Expenses	580,403	203,444	542,665	606,434	303,741	609,091	391,832	233,735	491,184
Addition (Reduction) to Net Assets Held In Trust for Pension Benefits	\$ 97,289,805	\$ 216,350,795	\$ (145,852,839)	\$ (356,254,065)	\$ 160,183,935	\$ 215,516,882	\$ (29,147,031)	\$ 62,731,660	\$ 151,013,040
Results Exclusive of Investments	(33,545,780)	(28,086,418)	(35,833,205)	(48,871,506)	(48,539,675)	(46,369,429)	(53,873,696)	(57,671,370)	(61,325,154)

Comparative Results for Other Systems

State Employees' Retirement System									
Category	2006	2007	2008	2009	2010	2011	2012	2013	2014
Employee Contributions	\$ 14,561,467	\$ 15,456,691	\$ 18,614,102	\$ 22,148,754	\$ 22,840,354	\$ 22,269,041	\$ 27,708,009	\$ 29,847,352	\$ 31,745,692
Employer Contributions	36,866,451	39,297,002	39,179,823	25,134,235	31,468,884	37,572,599	40,302,433	51,370,307	56,482,985
Other Income	1,171,516	205,321	169,984	1,041,870	227,524	743,172	377,562	638,736	453,852
Investment Income (Reduction)	115,146,415	192,625,279	(84,156,254)	(242,976,381)	182,593,261	238,386,383	23,604,774	110,715,697	203,721,748
Retirement Benefits	53,435,617	58,859,659	64,060,488	70,043,119	79,001,908	84,716,513	90,170,209	96,241,493	101,436,005
Refunds	1,351,911	1,526,140	1,414,144	1,403,995	1,521,440	1,731,375	1,908,752	2,515,758	2,461,242
Health/Life Insurance Expenses	11,590,588	13,541,092	16,371,373	-	-	-	-	-	-
Administrative Expenses	1,329,081	511,435	1,254,577	1,219,287	891,477	1,147,576	1,328,919	1,374,643	1,158,182
Other Expenses	668,929	344,719	631,321	477,966	568,278	613,899	702,136	437,367	595,306
Addition (Reduction) to Net Assets Held In Trust for Pension Benefits	\$ 99,369,723	\$ 172,801,248	\$ (109,924,248)	\$ (267,795,889)	\$ 155,146,920	\$ 210,761,832	\$ (2,117,238)	\$ 92,002,831	\$ 186,753,542
Results Exclusive of Investments	(15,776,692)	(19,824,031)	(25,767,994)	(24,819,508)	(27,446,341)	(27,624,551)	(25,722,012)	(18,712,866)	(16,968,206)

Municipal Retirement System									
Category	2006	2007	2008	2009	2010	2011	2012	2013	2014
SOURCES OF FUNDS									
Employee Contributions	\$ 8,744,718	\$ 9,769,882	\$ 9,906,709	\$ 9,557,973	\$ 10,711,600	\$ 11,702,728	\$ 11,337,926	\$ 15,060,665	\$ 13,233,728
Employer Contributions	7,926,436	8,535,396	-	8,008,862	10,592,919	11,117,363	11,532,230	12,014,186	12,805,737
Other Income	228,746	206,101	124,132	1,321,919	203,549	266,425	118,191	170,381	2,142,868
Investment Income (Reduction)	27,697,371	46,637,360	(19,472,654)	(56,937,342)	47,598,096	66,957,781	7,671,464	34,838,507	64,346,116
Retirement Benefits	7,120,325	7,969,703	9,064,725	10,228,263	11,073,098	12,298,902	14,214,160	16,101,187	18,153,649
Refunds	1,102,940	1,389,583	1,143,397	1,223,465	1,127,574	1,275,979	1,664,687	1,587,311	1,673,188
Health/Life Insurance Expenses	-	-	-	-	-	-	-	-	-
Administrative Expenses	439,983	687,382	623,619	798,458	393,947	569,603	672,851	749,447	633,312
Other Expenses	1,101,883	560,473	506,817	588,899	795,522	886,709	469,599	999,434	729,254
Addition (Reduction) to Net Assets Held In Trust for Pension Benefits	\$ 34,832,140	\$ 54,541,598	\$ (20,780,371)	\$ (50,887,673)	\$ 55,716,023	\$ 75,013,104	\$ 13,638,514	\$ 42,646,360	\$ 71,339,046
Results Exclusive of Investments	7,134,769	7,904,238	(1,307,717)	6,049,669	8,117,927	8,055,323	5,967,050	7,807,853	6,992,930

Health Care Expenditures



Health Care Expenses													
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
4,194,215	5,299,600	6,634,738	8,279,332	10,167,601	11,233,854	13,040,783	15,081,847	16,421,176	17,203,669	18,749,675	20,620,144	22,459,219	24,640,986

Teacher Health Care Benefit Changes Effective 2010

- For new hires and those with less than 10 years of service...
 - 1 to 14 years: No subsidized coverage
 - 15 years: 60% Single
 - 20 years: 70% Single
 - 25 years: 80% Single or spousal

- Current actives with more than 10 years of service...
 - 80% single coverage - same as now
 - 25 years: 80% single or spousal coverage
 - However:
 - Those with more than 30 years of service will have to work another 5 years to be eligible for spousal coverage.
 - Those with 25 to 30 years of service will have to work a total of 35 years.
 - Those with 15 to 24 years of service will have to work 10 more years.
 - Those with 10 to 15 year of service will be eligible upon 25 years of service.

Impact of Enacted Benefit Changes to 2010

OPEB Valuation

- Actual impact on unfunded liability exceeded original estimates, in part in combination with other lower health care inflation rates:
- Per the consulting actuary, The decrease in liability is attributable to the following factors:
 - an increase in plan premiums smaller than expected;
 - removal of assumed age-morbidity factors;
 - changes to eligibility and cost-sharing plan provisions effective July 1, 2010, including associated changes in assumptions and attribution method.
- Unfunded liability reduced in **2010 from \$872 million to \$704 million.**

Teacher Unfunded OPEB Liability

Unfunded Teacher OPEB Liability

6/30/2014	\$777 Million		
6/30/2013	\$713 Million	}	Implementation of Employer Group Waiver Plan (EGWP)
6/30/2012	\$827 Million		
6/30/2011	\$780 million	}	Implemented Savings Initiatives including Tiered Eligibility Structure
6/30/2010	\$704 million		
6/30/2009	\$872 million		

- Liability Side has been addressed with significant initiatives but lack of a funding policy for health care continued to create upward pressures through 2014.

Factors Impacting Unfunded Liability:

- Expected increases due to the passage of time (and lack of funding) although offset in 2013 by EGWP initiative
- 2012: The inclusion of the retirements that occur on the day after the valuation date for the first time (improvement in processes to account for summer retirements)
- Updates to demographic assumptions as recommended by the Experience Study of the State Teacher's Retirement System of Vermont, presented to the Board on March 23, 2011
- 2009-2010- Negotiated benefit changes

Fundamental Changes to Health Care Funding **Effective 7/1/2014**

- The State has established and funded a separate trust to account for the assets and liabilities of the retiree medical benefit plan.
- Annual contributions to the Retiree Medical Plan are to be separately identified in the State budget and not commingled with Retirement Plan contributions.
- A series of funding sources were put in place, replacing the “retroactive” funding approach.